

CLAIMS

1. A lens barrel assembly having a movable lens disposed in a lens barrel for movement along an optical axis, an actuating mechanism for moving said movable lens along the optical axis, and control means for controlling said actuating mechanism,

wherein said actuating mechanism has an externally threaded member extending parallel to said optical axis, a motor for rotating said externally threaded member, an internally threaded member nonrotatably threaded over said externally threaded member for movement along said externally threaded member into abutment against said movable lens in response to rotation of said externally threaded member, and urging means for urging said movable lens in the longitudinal direction of said externally threaded member to move into abutment against said internally threaded member;

said lens barrel assembly further comprising position detecting means for detecting a position of said movable lens along the optical axis and generating positional data corresponding to the detected data; and

wherein said control means comprises a first controller for controlling an angular displacement of said motor in order to equalize the position of said

movable lens along the optical axis to a target position based on said positional data supplied from said position detecting means, and a second controller for judging that said movable lens is forcibly stopped against movement and immediately de-energizing said motor if said positional data remains unchanged for a predetermined period of time while said motor is in rotation.

2. A lens barrel assembly having a movable lens disposed in a lens barrel for movement along an optical axis, said movable lens being nonrotatable about said optical axis, an actuating mechanism for moving said movable lens along the optical axis, and control means for controlling said actuating mechanism,

wherein said actuating mechanism has an internally threaded member mounted on said movable lens, an externally threaded member threaded in said internally threaded member and extending parallel to the optical axis, a motor for rotating said externally threaded member, and urging means for urging said movable lens in the longitudinal direction of said externally threaded member;

said lens barrel assembly further comprising position detecting means for detecting a position of said movable lens along the optical axis and generating

positional data corresponding to the detected data; and

wherein said control means comprises a first controller for controlling an angular displacement of said motor in order to equalize the position of said movable lens along the optical axis to a target position based on said positional data supplied from said position detecting means, and a second controller for judging that said movable lens is forcibly stopped against movement and immediately de-energizing said motor if said positional data remains unchanged for a predetermined period of time while said motor is in rotation.

3. The lens barrel assembly according to claim 1 or 2,

wherein said second controller establishes said positional data when said motor is de-energized as a reference position for a distance over which said movable lens is to move along the optical axis or a position to which said movable lens is to move along the optical axis.

4. The lens barrel assembly according to claim 1 or 2, further comprising:

a guiding mechanism disposed in said lens barrel for guiding said movable lens along the optical axis, said guiding mechanism having a guide shaft extending along the optical axis and engaging in a bearing on said

movable lens for guiding said movable lens along the optical axis, said urging means including a helical spring coiled around said guide shaft and having an end resiliently held against said bearing and the other end resiliently held against said lens barrel.

5. An image capturing apparatus including a lens barrel assembly having a movable lens disposed in a lens barrel for movement along an optical axis, an actuating mechanism for moving said movable lens along the optical axis, and control means for controlling said actuating mechanism,

wherein said actuating mechanism has an externally threaded member extending parallel to said optical axis, a motor for rotating said externally threaded member, an internally threaded member nonrotatably threaded over said externally threaded member for movement along said externally threaded member into abutment against said movable lens in response to rotation of said externally threaded member, and urging means for urging said movable lens in the longitudinal direction of said externally threaded member to move into abutment against said internally threaded member;

said lens barrel assembly further comprising position detecting means for detecting a position of said

movable lens along the optical axis and generating positional data corresponding to the detected data; and

wherein said control means comprises a first controller for controlling an angular displacement of said motor in order to equalize the position of said movable lens along the optical axis to a target position based on said positional data supplied from said position detecting means, and a second controller for judging that said movable lens is forcibly stopped against movement and immediately de-energizing said motor if said positional data remains unchanged for a predetermined period of time while said motor is in rotation.

6. An image capturing apparatus including a lens barrel assembly having a movable lens disposed in a lens barrel for movement along an optical axis, said movable lens being nonrotatable about said optical axis, an actuating mechanism for moving said movable lens along the optical axis, and control means for controlling said actuating mechanism,

wherein said actuating mechanism has an internally threaded member mounted on said movable lens, an externally threaded member threaded in said internally threaded member and extending parallel to the optical axis, a motor for rotating said externally threaded

member, and urging means for urging said movable lens in the longitudinal direction of said externally threaded member;

said lens barrel assembly further comprising position detecting means for detecting a position of said movable lens along the optical axis and generating positional data corresponding to the detected data; and

wherein said control means comprises a first controller for controlling an angular displacement of said motor in order to equalize the position of said movable lens along the optical axis to a target position based on said positional data supplied from said position detecting means, and a second controller for judging that said movable lens is forcibly stopped against movement and immediately de-energizing said motor if said positional data remains unchanged for a predetermined period of time while said motor is in rotation.